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(21)Application 2002- (71)Applicant : HEWLETT PACKARD CO
number : 237927 <HP>

(22)Date of filing : 19.08.2002 (72)Inventor : ERICKSON JOHN S
SCHLAGETER MARK

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(54) PROXY SERVICE PROVIDING APPARATUS

(57)Abstract:

PROBLEM TO BE SOLVED: To provide an apparatus providing proxy service between a client platform and a remote contents provider providing electronic contents.

SOLUTION: The apparatus is provided with a means to receive and interpret requests for electronic contents of the contents provider from the client platform a means to transmit the requests to the contents provider and receive data including at least one marker indicating locations of information operating/policy performing remote servers suitable for the requested contents and a means to interpret the one or more markers and transmit instead of the client platform requests for transmitting a clear contents version of the contents to the client platform when requirements of information operating/policy performing service are satisfied.

CLAIMS

[Claim(s)]

[Claim 1]It is a device which provides proxy service between one or more client platforms and one or more remote platforms(a) Receive and interpret a demand

of a client plat form to electronic contents or information on a remote plat formA function to transmit said demand to said remote plat formand to receive dataor (b) -- a means to perform both both [either or] which receive data which is typical information or contents with which said remote plat form is provided from a client plat form[have and] Said data includes at least one marker showing a location of manipulation of information / policy operation remote service suitable for information or contents required or provided.

When said one or more markers are interpreted and requirements for manipulation of information / policy operation service are satisfiedsaid device(a) A function which transmits demand of providing said client plat form with said information or a clearance contents version of contentsinstead of said client plat formor (b) -- a proxy service provision system constituted so that it might have a means to perform both both [either or] which transmit demand of providing said remote location with said information or a clearance contents version of contents to suitable manipulation-of-information policy operation service.

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention]Especially this invention relates to the flexible plat form which supports the right management method and other manipulation-of-information policies only for an information technology network environmentconcerning electronic right management generally.

[0002]

[Description of the Prior Art]Copyright is intellectual property rights granted to the original author of a specific kind of workand the original author can manage various directions of the work according to copyright. Copyright is for protecting literaturea dramamusicthe work of fine artsa publicationsound recordinga movie (video is included)and the original of broadcast (cable broadcasting and satellite broadcasting are included).

The right provided by copyright reaches various fieldssuch as a duplicate of the work which is the target of protectionadaptationsdistribution of a duplicatea public performanceand broadcast.

In many casesan author has the right to have it specified that it is its own workand the right to make an opposition to defamation and modification of its own work. Since the right of loan is given to sound recordinga movieand the copyright person of a computer programthe license delivered by the copyright person for carrying out by lending out such a work publicly is needed.

[0003]In recent yearselectronic preservation of contentssuch as sound recordinga literary workand a movieis becoming increasingly generaland commercial distribution of such electronic content is performed from the former at retail

stores such as a record shop and a bookstore. Although there are many advantages in the commercial distribution of the electronic content through an information technology network it is not necessarily widely adopted as the author or the distributor of such contents. The main reason is concern of a third party reproducing and selling and becoming easy to distribute such contents unlawfully as a result. For this reason great efforts have been paid towards development of the technical protection measure of preventing the unjust duplicate of electronic content.

[0004] An illegal duplicate is comparatively easy and for a content provider this [digital contents'] is also convenient and is also inconvenient. That is although it is desirable that contents can be distributed by one side as widely as possible (value increases and it counts also upon acquisition of big profits) payment is wanted to still be made certainly for every sale i.e. do not infringe on copyright. In order to prevent the above copyright infringement a content provider tends to adopt a digital protection method (usually based on encoding technology). This method is b with difficult restriction of distribution that it is hard to use for a consumer. There is a possibility that it may be cancelled by the free illegal method with which a user tends to operate the contents of c EQC which requires expense for management.

[0005] One of the known protection methods is provided from Microsoft Digital Media System and electronic content is provided with a key. The user cannot reproduce contents unless it acquires a key corresponding from a regular keyserver. The main faults of this method are that the connection with a user's playback equipment is strong. That is when reproducing the contents protected by this method a device for exclusive use is needed.

[0006] Generally substantial encryption of the work is included in known digital rights management and protection method.

Reproduction of the contents reproduced and reproduced is difficult. The digital rights management (DRM: Digital rights management) art used now is known by the user also as a secure container. That is by this art an original file format is defined and arbitrary media files are encapsulated to a secure one in it.

[0007] For example the art for defining using and operating a right management data structure to US6138119B is shown. In this Description safe and secure preservation and transmission of digital contents are realized using the concept of a secure digital container. Since an alteration is difficult for such a container the digital information of arbitrary forms such as a text, graphics, software that can be performed an audio and video can be used for package-izing for example. However the situation where secure contents can be used is limited by this method.

[0008] In another system plug-in security function is provided to specific media formats (Adobe (trademark) PDF etc.). A software plug-in business model Video, audio (connectable codec) multimedia (connectable execution program "extends" a program) Although the Creativity tool (filter which extends the Image Processing Division tool) a web browser etc. have been used for extension of application over many years in other specific commercial scenes only Adobe Acrobat (trademark)

provides the security function now.

A third party's developer can develop uniformly DRM which functions in a specific format using Acrobat TM.

However the method of using it by this system is restricted by the function of a target format (PDF). That is by this method the format which can guarantee security is limited to one kind and the kind of media is limited.

[0009] The provider of digital information products a broker and consumers An information producer presents intellectual property rights (IPR) and it is afflicted by "fragmentation of policy operation" without the consistent platform which asserts an IPR policy (policy showing the rule to which brokers such as a wholesaler a retailer and a library operate information especially). Displaying such information for users the platform where it was [for interpreting and carrying out a policy] consistent does not exist. The consumer in connection with transmission of private data and reuse releasable in the middle of a network transaction is not necessarily carrying out the policy which prepares the too consistent platform and operates individual information under the control either.

[0010] Generally the user in connection with an information value chain wishes to receive information after presenting the policy about handling or processing of information thought to be a policy demanded about the handling of the information to operate. In known art this problem is unsolvable by the consistent systematic method.

[0011] The concept of using proxy service for filtering of contents and adaptation is known (a "proxy" only means "the authority which the substitute was given" in a broad sense). For example filtering based on the rule for removing the advertisement etc. of contents which are not desirable is the newly generated work. By removing specific data from the data which a computer receives especially via a network at US5996011B with a filter has described the system and method of restricting access to the received data. The method of the computer base which filters the text data or the target text data which is not preferred from the World Wide Web page which the computer connected to the Internet receives is shown by one embodiment. In the Internet or Internet environment in US6119165B a function is added to the proxy server which supports many clients and there is description about the system which enables it to provide a specific client with a software module based on the characteristic of a client. In this way the downloaded module is performed by the client which set up the two-way communication link of a proxy server and a client. With a bidirectional link the status display in the client side which uses the window of a client platform for example becomes possible and a virus scan filtering of contents bandwidth use etc. can display the present status of a proxy server. In other applications the offer origin of the bulletin board of an organization a news channel and a common software patch can be built with the downloaded module.

[0012] It is acquired from the Internet computer network with the server of a remote Internet Service Provider by US5987606B The system which filters the Internet contents transmitted to a local client computer is shown. At least one

filtering methodssuch as a filter implicative in this systemand an exclusive filterAt least one filtering elementssuch as a list of the site permitted or sites which are exceptedare compared with the specific Internet requests generated with the local client computer. In this casealthough the filtering method is mounted in the ISP servergenerally this kind of filtering service and adaptation service may be applied to any of the halfway point of a client sidea serverand both. It is not necessary to limit filtering and adaptation to downstream contents (contents which a client plat form receives from a server). That isin order to guarantee privacy and anonymitythe proxy service which is adapted for a user input exists.

[0013]

[Problem(s) to be Solved by the Invention]Howeverno known proxy services provide the practical intervention point of application (they are management of copyrightand service of use especially) of a manipulation-of-information policy. By the known mechanism which generally carries out a copyright policyas above-mentioned. Usually. [whether a result which uses special "read-out" software by the client sideand spoils pleasure of the end user about contents is broughtand] The policy operation function for which it depends on very restrictive contents by the server side will be usedand the contents which can appreciate an end user will be restricted. Client application for exclusive use has many faults from restriction by plat-form compatibility or application compatibility to a user's inconvenience. There are many weak points also in the system of a known server base from the problem of the granulation on management to the problem of the pliability of contents.

[0014]

[Means for Solving the Problem]Thenstructure for conquering the above problem was devised. In this wayaccording to the 1st side of this inventiona device which provides proxy service between one or more remote content providers who provide one or more client plat formselectronic contentsor information is provided.

[0015]A means for this device to receive a demand of a client plat form to a content provider's electronic contentand to interpretA means to receive data including at least one marker showing a location of the manipulation of information / policy operation remote server which transmitted said demand to a content provider and was suitable for demanded contentsSaid one or more markers are interpretedWhen requirements for manipulation of information / policy operation service are satisfiedit has a means to transmit demand of transmitting a clearance contents version of said contents to said client plat forminstead of said client plat form.

[0016]According to the 1st side of this inventiona method of providing proxy service between one or more remote contents servers which provide one or more client plat forms and electronic content is also provided. A step which receives and interprets a demand of a client plat form to electronic content of a contents server in this methodA step which receives data including at least one marker showing a location of manipulation of information / policy operation remote server suitable for contents required as a step which transmits said demand to a

contents serverA step which interprets said one or more markersWhen requirements for manipulation of information / policy operation service are satisfieda step which transmits demand of transmitting a clearance contents version of said contents to said client plat forminstead of said client plat form is contained.

[0017]According to the 2nd side of this inventionA device which provides proxy service between one or more remote plat forms adjusted so that electronic contents or information might be received from one or more client plat form and said one or more client plat forms is provided. This deviceAt least one marker showing a location of the manipulation of information / policy operation remote server to which data transmitted to a remote plat form fitted information which is typical information or contents with which said remote plat form is providedand is provided. A means to receive said data from a client plat form when containedA means to interpret said one or more markersWhen requirements for manipulation of information / policy operation service are satisfiedit has a means to transmit demand of providing said remote location with a clearance contents version of said information to suitable manipulation-of-information policy operation service.

[0018]According to the 2nd side of this inventionA method of providing proxy service between one or more remote plat forms adjusted so that electronic contents or information might be received from one or more client plat form and said one or more client plat forms is also provided. In this method. When it includes at least one marker showing a location of the manipulation of information / policy operation remote server to which data transmitted to a remote plat form fitted information which is typical information or contents with which a remote plat form is providedand is providedA step which receives said data from a client plat formA step which interprets said one or more markersWhen requirements for manipulation of information / policy operation service are satisfieda step which transmits demand of providing said remote location with a clearance contents version of said information to suitable manipulation-of-information policy operation service is contained.

[0019]Thusthis invention provides proxy service which can be used as a relay point of a client plat form and various content providers accompanied by various right management policies or a manipulation-of-information policyThe content provider can carry out an original policy of his company certainly by it. Thereforethis invention provides proxy service which a client plat form and a client plat form can use as a relay point with various remote locations which transmit high information and individual information on confidentialityAn original policy about the confidentiality/anonymity of a client plat form is certainly maintainable by it. One proxy service according to this invention can be used for the two purpose. That issuch service can be adjusted so that both data received from a client plat form and data transmitted to a client plat form may be processed.

[0020]This proxy service may be locally arranged on a client plat form. Howeverwhen a "client" is provided with a systematic network including two or more plat formsthis proxy service may be arranged at the center in the network.

Or this proxy server may be arranged on a remote point of information technology networkssuch as the Internet.

[0021]A contents server returns a data stream which answers a contents request from this proxy serviceand includes one or more markers. Detailed information (URLDOIetc.) of a location of other services of one or more which needs to have a dialog before proxy service transmits a duplicate of contents to a client plat form is included in a marker. As for such a marker being embedded at a data streamthis being recognizedand it being able to interpretit is preferred to be limited to a means for exclusive use provided inside proxy service.

[0022]A client plat form in the case of a web browser etc.As for proxy servicewhen transmitting a contents request to manipulation of information / right management remote serverit is preferred to be adjusted so that data (session ID etc.) relevant to a client plat form may be included in a demand (directly or indirectly). Thereforemanipulation of information / right management remote server is provided with information about a client plat form. Detailed information peculiar to an end user can also be included in a demand (especially). When there are no special requirements relevant to manipulation of information / right management server for an end user and a client plat form to be another entitiesand for a client plat form converse with an end user.

[0023]If manipulation of information / right management server receives a contents request from proxy service and verifies the legitimacy of a demandManipulation of information / right management server creates a clearance contents version of contentssaves this for a local or a remote specific location (temporarily [if it can do])and returns detailed information of said location to proxy service further. As for proxy serviceit is preferred that it can adjust so that detailed information of a location of a client plat form which saves a clearance contents version of contents may be transmitted. When specific requirements about manipulation of information / right management server are satisfied by thisthe client plat form can acquire a duplicate of said clearance contents.

[0024]It cannot be overemphasized that a policy which manipulation of information / right management server adopts is dependent on character of contents required as a content provider (a natural thing *****). It is also clear that a client plat form or an end user can relate and do manipulation of information / right management service. After operating information transmitted to a remote location from a client plat form by a proxy server and processing via suitable manipulation-of-information service by thisit can transmit to said remote location.

[0025]

[Embodiment of the Invention]Hereone embodiment of this invention is explainedonly referring to attached Drawings as an example.

[0026]Reference of drawing 1 shows the typical connection (one example) between the web browser 10 (accessible from a client computer plat form (not shown))the proxy server 12 according to this inventionand digital-rights-management (DRM) Web Service 14. This connection is usually made via information technology networkssuch as the Internet. The arrows

122a33a44a4b4c4d56and 7 show the direction of the demand and response which are exchanged in the typical process described below between the web browser 10the proxy server 12and DRM Web Service 14.

[0027]In the first instancewhen peculiar session ID is generatedthe web browser 10 logs in to the proxy server 12. Session ID is not recognized by the end user but is used for verification of a session in a next process.

[0028]If the arrow 1 is referred tothe display side client 10i.e.a web browserwill require a network resource by showing the proxy server 12 a network address (for exampleURL and DOI). It cannot be overemphasized that the proxy server 12 can be arranged [the network of a company or an organization] also on the remote point of information technology networkssuch as the Internetalso also locally intensively to a user's workstation.

[0029]The proxy server 12 uses an HTTP protocol and usually transmits the suitable network request to a resource to the contents server 16 (arrow 2). The contents server 16 usually exists in location with the another proxy server 12and returns resourcessuch as a Web page (arrow 2a). Generally a resource takes the form of an HTML file or a more general XML file. At the resource filethe thing similar to the markup tag which calls other resources is embeddedand it can acquire only by processing for exclusive use in which the manipulation-of-information policy or digital rights management which the proxy server 12 provides was followed. This kind of markup tag is described as a <DRM> object by this embodiment of this invention. Such a <DRM> object instance in a data stream with "open" others transmitted to the proxy server 12It has the attributes (URLDOIetc.) which refer to other Web resources which need to have a dialog in order for the proxy server 12 to embed and to check the location of the clearance (that isnot enciphered) version of a contents object.

[0030]It cannot be overemphasized that the proxy server 12 is adapted for the markup tag embedded in the data stream received from the contents server 16. Even if the web browser 10 tends to acquire an immediate-data stream from the contents server 16without passing the proxy server 12 firstly a portion with an "open" stream can recognize a browser. Thereforeeither recognition nor an interpretation can do a markup tag (that isthe web browser 10 disregards a tag).

[0031]If a resource-data stream is received from the contents server 16the proxy server 12 will check the stream which received in accordance with a series of generated rulesand will detect one or more markup tags embedded at the data stream. The proxy server 12 is adjusted so that the property which shows the location of the "drm file" arranged at the remote point on the Internetfor example may be extracted from the tag text. Nextthe proxy server 12 requires the specified <DRM> file (one or more) (arrow 3)and receives (arrow 3a). In the <DRM> fileXML syntax may be usedfor example. The proxy server 12 extracts "content_type" and "content_location" (for exampleURL) of a actual contents object (usually package-ized by the secure container etc.) from this file.

[0032]This service interprets content_type which usually uses "MIME" encodings (image/jpeg etc.)and compares it with one or more content_type which registered

this content_type into proxy service. If content_type is one of the types registered into servicea "clear" tag structure returned to an end user will be determined. For examplewhen the package-ized contents are a MIME type image / jpegthe changed tag structure must be the format of "." That iswhen an end user enables it to use a resource (as a user to whom the registered user and the license were given)the proxy server 12 operates as follows.

[0033]Hereit is required that the proxy server 12 should create a "clear contents" version peculiar to the session of the resource with which remote DRM Web Service 14 was specifiedand should return URL peculiar to a session (arrow 4). If it describes in detaildrm service Interface Division 18 will arrange the encryption version of a <drm> file to the enciphered content archive 20 in drm Web Service 14 (arrow 4a). Nextthe contents archive 20 transmits the enciphered <drm> file to the decipherment component 22 which exists in drm Web Service 14 too. The decipherment component 22 decodes a file and creates a "clear contents" version. This clear contents version uses a peculiar file name peculiar (it is temporary) to a sessionand a cash advance is transmitted and (arrow 4c) carried out to the clear contents cash 24 which exists in drm Web Service 14 too. It is transmitted to drm service Interface Division 18and a peculiar file name generates URL peculiar to the session of the resource which is not secureand transmits to the proxy server 12 (arrow 4d).

[0034]The proxy server 12 creates the contents stream (for exampleHTML page) changed using the format corresponding to MIME (in this case). A HTML page is reformatted so that URL of a meaning peculiar to a session which drm Web Service 14 provides may be specified. The reformatted HTML page is returned to the web browser 10 here (arrow 5).

[0035]Nextthe web browser 10 requires the contents which are saved via the redirector service interface 26 into the clear contents cash 24 in drm Web Service 14 and which are not secure (arrow 6). The demand of a browser comprises a query string who contains URL peculiar to an effective session only in the present browser session. Redirector service Interface Division 26 is compared with URL peculiar to a session described by the query string whom checks the present browser session and the browser 10 transmits. If a session is in agreement and the memory of clearance contents has a timeout rulewhen the term has not expired redirector service Interface Division 26 transmits clearance contents to the web browser 10and the end user can use this.

[0036]This invention is based on the new concept of intervention of a proxy baseand adaptation of contentsand provides the plat form which summarizes an interpretation and operation of a manipulation-of-information policy and a digital-rights-management policy. In the case of a portal etc.especially this is effective. In such a situationa user needs to apply a policy by the consistent flexible method to the large-scale base of the relation which uses various display ring boundaries. If it puts in another way and this invention will be usedmanipulation-of-information policies (policy of copyright useetc.) peculiar to a user can be consistently applied on the heterogeneous network of an organization.

[0037]In the technique adopted by this invention user authentication and the process of approval and actual mounting of policy operation of a mechanism are maintained independently intrinsically. By this an organization or the contents service can manage an information policy using the company database of central control (when various policies are applied to various rolls of especially an in-house such as a site licence of the organization about an electronic journal).

[0038]The above portion of a Description has described this invention in relation to the specific typical embodiment. However unless it deviates from the pneuma and the range of this invention which are shown in the above-mentioned claim it is clear to a person skilled in the art for the various modification and change to be possible. Therefore it is necessary to consider that does not mean restriction and this Description and Drawings mean illustration.

[0039]This invention contains the following embodiment as an example.

[0040](1) It is a device which provides the proxy service (12) between one or more client platforms (10) and one or more remote platforms (16)(a) Receive and interpret the demand of a client platform (10) to the electronic contents or information on a remote platform (16)The function to transmit said demand to said remote platform (16) and to receive dataOr (b) It has a means to perform both both [either or] which receive the data which is the typical information or contents with which said remote platform (16) is provided from a client platform (10)Said data includes at least one marker showing the location of manipulation of information / policy operation remote service (14) suitable for the information or contents required or providedWhen said one or more markers are interpreted and the requirements for manipulation of information / policy operation service are satisfied said device(a) The function which transmits the demand of providing said client platform with said information or the clearance contents version of contents instead of said client platform(b) Said device provided with a means to perform both both [either or] which transmit the demand of providing said remote location with said information or the clearance contents version of contents to suitable manipulation-of-information policy operation service.

[0041](2) The data stream which answers the demand of the information by proxy service (14) or contents and includes one or more markers is returnedA device given in (1) in which the detailed information of the location of other services of one or more which needs to have a dialog before proxy service (12) transmits the duplicate of contents to a marker on a client platform (10) is included.

[0042](3) A device given in (2) which the marker is embedded at the data stream can recognize a marker only by the means for exclusive use provided inside proxy service (12) and can be interpreted.

[0043]A client platform (4) In the cases of a web browser (10) etc. When transmitting information or a contents request to manipulation of information / right management remote service (14)A device given in either of (1) to (4) adjusted so that proxy service (12) may contain the data relevant to client platforms (10) such as session ID in a demand.

[0044](5) If manipulation of information / right management service (14) receives a

contents request from proxy service (12) and verifies the legitimacy of a demandA device given in either of (1) to (4) which creates the clearance contents version of contentssaves for a local or a remote specific location (24)and returns the detailed information of said location to proxy service (12) further.

[0045](6) A device given in (5) the clearance contents version of said contents is temporarily remembered to be.

[0046](7) It is adjusted so that proxy service (12) may transmit the detailed information of the location of a client plat form (10) which saves the clearance contents version of contentsAs a resulta device given in (5) from which a client plat form (10) can acquire the duplicate of said clearance contents when the specific requirements about manipulation of information / right management service (14) are satisfied.

[0047](8) It is the method of providing the proxy service (12) between one or more client plat forms (10) and one or more remote plat forms (16)(a) Receive and interpret the demand of a client plat form (10) to the electronic information or contents of a remote plat form (16)The step which transmits said demand to said remote plat form (16)and receives data(b) Both both [either or] which receive the data which is the typical information or contents with which said remote plat form (16) is provided from a client plat form (10) are includedAt least one marker showing the location of manipulation of information / policy operation remote service (14) suitable for the information or contents with which said data was required or provided is includedWhen the requirements for the step which furthermore interprets said one or more markersand service (12) of manipulation of information / policy implementation are satisfied(a) The step which transmits the demand of providing said client plat form (10) with said information or the clearance contents version of contentsinstead of said client plat form (10)(b) A method containing both both [either or] which transmit the demand of providing said remote plat form (16) with said information or the clearance contents version of contents to suitable manipulation-of-information policy operation service (12).

DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1]It is a flow chart showing the outline of operation of the typical embodiment of this invention.

[Description of Notations]

10 Client plat form

12 Proxy service

14 Manipulation of information / right management remote service

16 Remote plat form
